Subject: West Nile Virus update for Michigan

"What's happened with West Nile Virus this year?"

Although West Nile Virus continues to be a major health concern throughout the United States, particularly as it progresses west toward California, the disease has apparently declined in Michigan compared to last year. It's still too early to say if we've escaped a continuation of last year's outbreak, but all indications are that things will be much less severe. As of August 18, there were no confirmed human or horse cases in Michigan. Reports of dead bird across the state are declining in contrast to last year when they were still increasing at an almost exponential rate in early August. In general, percentages of trapped mosquitoes found to carry the virus are less than last year. This is clearly not a time to relax in efforts to keep the public aware and may in fact show that such efforts were successful.

At present, it's impossible to give definitive reasons for the decline. Newly emerging diseases often progress in cyclical “waves” from a point of origin. It's very likely that reductions in susceptible bird populations (reduced reservoir), increased immunity in non-susceptible populations, a generally cooler, wetter summer (change in mosquito vector populations), and increased public awareness of the risks associated with mosquito bites all contributed.

Speaking from the mosquito biology standpoint, we've had very different conditions from last year's hot/dry summer that favored production of Culex spp. Interestingly, we've also found a much higher number of WNV positive mosquitoes from other genera, including pools of Aedes, Anopheles, and Coquillettidia, compared to last year. In fact, of all the positive pools found so far, the majority has been non-Culex. This is partly related to a much more intensive effort to trap and test mosquitoes (over twice as many mosquito pools have been tested this year already compared to the entire season last year). (It should also be noted that some Culex populations tend to peak in late summer and that the data set for this year is far from complete even though over 2,500 pools representing over 25,000 mosquitoes have already been tested.) The vector "competence" of other mosquito species for WNV is unknown and is likely less than Culex spp. However, this summer's data indicate the disease could be maintained via an expanded set of mosquito vectors and hosts. Many of these non-Culex species preferentially seek mammal (e.g., human) hosts and their role in any resurgence of the disease in Michigan could be important.

The overall message based on current information is that although WNV has declined in Michigan during 2003 it is also now well established and will continue to be a concern. It will be important to keep the public aware of the risk's associated with mosquito bites, to monitor bird and mosquito populations, and to maintain efforts to reduce mosquito numbers.

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